

REMARKS/ARGUMENTS

The Office Action sets forth a final rejection of the pending claims. As shown above a number of the pending claims are canceled by the present amendment. This cancellation of claims is done to expedite prosecution of the remaining claims, and is done with out prejudice to pursuing the canceled claims in a continuation case.

The above amended claims 9, 27 and 35 correspond to original claims 9, 27 and 35 rewritten in independent form to incorporate the limitations of their base independent claim and any intervening claims. It is respectfully that these pending claims are patentably distinguishable over the cited references, as set forth in detail below.

The Office Action rejected independent claims 1, 19 and 28, which have been incorporated into the amended claims 9, 27 and 35 respectively, under 35 USC §102(e) as being anticipated by Vogler (US 2002/0176469 A1). The rejection of the claims 9, 27, and 35 is respectfully traversed as follows.

In rejection the three pending independent claims 1, 19 and 28, the Office Action states in part:

Regarding claims 1, 19 and 28, Vogler et al. teach a method of performing failure analysis (see pages 1-17) comprising: exciting a gain medium containing molecular fluorine (F₂) having an output beam of 157 nm (see Figs 1A-1b and 2); and directing the output beam (20) onto a semiconductor device to selectively etch away material therefrom (see paragraph [008]).

Office Action, p. 2.

It is respectfully submitted that a review of Vogler appears to show aspects of a laser system, but Vogler does not appear to discuss failure analysis. Indeed it is respectfully submitted that a review of pages 1-17 did not appear to disclose discussion of failure analysis. Further, Vogler does not appear to suggest directing a beam onto a multi-layer semiconductor device to selectively etch away material therefrom.

In the analysis rejecting claims 1, 19 and 28, the Office action specifically refers to paragraph [008] of Vogler as disclosing "directing the output beam (20) onto a semiconductor device to selectively etch away material therefrom (see paragraph [008])." Office Action, p. 2.

For ease of reference ¶ 008 of Vogler is shown below:

[0008] The F₂-laser has an advantageous output emission spectrum including one or more lines around 157 nm. **This short wavelength is advantageous for**

photolithography applications because the critical dimension (CD), which represents the smallest resolvable feature size producible using photolithography, is proportional to the wavelength. This permits smaller and faster microprocessors and larger capacity DRAMs in a smaller package. The high photon energy (i.e., 7.9 eV) is also readily absorbed in high band gap materials like quartz, synthetic quartz (SiO₂), Teflon (PTFE), and silicone, among others, such that the F₂-laser has great potential in a wide variety of materials processing applications. It is desired to have an efficient F₂ laser for these and other industrial, commercial and scientific applications.

It is respectfully submitted that photolithography is a process where a photoresist material is formed on the surface of a semiconductor wafer, and light can be used to treat the photoresist. This treatment results in pattern being formed in the photoresist, and a chemical etching process is then used to remove portions of the semiconductor wafer, where portions of the wafer are exposed to the chemical etching process by virtue of the pattern defined by the photoresist on the surface the semiconductor wafer. **It is respectfully submitted that use of a photolithography process shows that the etching, or removal of the passivation layer is done by a chemical etching process, and not by the output beam.**

The focus of much of the discussion in Vogler is on aspects of a laser system. For example the field of the invention of Vogler, appears to provide a very high level summary of the content of the discussion in Vogler, stating:

[0003] The invention relates to a molecular fluorine (F₂) laser, and particularly to an F₂-laser with an improved resonator design and improved beam monitoring and line-selection for providing stable output beam parameters at high operating repetition rates.

It is respectfully submitted that there appears to be no discussion or suggestion in Vogler, that one should perform a failure analysis method, which includes selectively etching or removing a portion of a passivation layer using the output beam.

In addition to the above it is important to note that claims 9 and 27 both expressly recites:

viewing the etching of the material using a camera aligned co-linearly with a final trajectory of the output beam.

Claim 35 recites the step of "viewing the removal of the passivation layer using a camera aligned co-linearly with a final trajectory of the beam". As shown by the above amendments, the above quoted language regarding the camera was originally contained in the formerly dependent claims 9, 27 and 35.

In the Office Action previously dependent claims 9, 27 and 35 were rejected as follows:

Regarding claims 9, 27 and 35, Vogler et al. teach monitoring the etching of the material by using a camera (see Figs. 13-14A and paragraphs [0037] and [0038]).

Office Action, p. 3. In fact, the Figs. 13 and 14A and ¶0037 and 0038 of Vogler appear to discuss and show an array detector. The array detector appears to be used in connection with monitoring and controlling the of lines and for monitoring stability of a selected wavelength. For example, ¶0037 is shown below for ease of reference.

[0037] In a fourth aspect of the invention, a monitor grating and an array detector are provided for monitoring and controlling the intensity of the selected (and/or unselected) lines and for monitoring the stability of the selected wavelength. The quality of the line selection may be advantageously monitored.

Reference to the Figs. 13 and 14A of Vogler also show that the array detector is orientated such that is perpendicular to the output beam of the system.

The array detector discussed in Vogler does not appear to provide for the viewing of the etching of material. Indeed it would appear that array detector of Vogler is positioned such that it receives a portion of an output beam which is redirected by a beam splitter to the array detector. See, e.g., Vogler ¶0169. This portion of the beam received by the array detector would not appear to provide for the viewing of the etching of material. Indeed, it appears that the redirected beam received by the array detector would be a portion of the beam which never reaches the area which is being etched and would not provide any information which would allow for viewing the etching of material.

Further, the Vogler does not appear to contain any teaching which would suggest viewing as recited by each of the pending claims.

It is also noted that as discussed in the March 11, 2003 Response filed by the Applicants that the Vogler reference cited in the Office Action is assigned to Lambda Physik AG, the assignee of the present patent application, and that the subject matter of Vogler and the present application were both at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. Accordingly, the Vogler reference should not preclude patentability under 35 USC §103.

It is recognized that the rejection under Vogler was under 35 USC §102(e), not under 35 USC §103. However, as shown above the Vogler reference does not anticipate the pending

claims. Also, it is respectfully submitted that the Vogler reference does not render the pending claims obvious. Further, under 35 USC §103 (c) Vogler would not be a proper §103 reference. In light of the above it is respectfully submitted that the pending claims 9, 27 and 35 are patentable over the references.

CONCLUSION

For the reasons set forth above, the rejections of the pending claims are traversed, and it is believed that all claims now present in this application are patentably distinguishable over the references. Therefore, reconsideration is requested, and it is requested that this application be passed to allowance.

Respectfully submitted,

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